

**CHAPTER 173–221 WAC**  
**DISCHARGE STANDARDS AND EFFLUENT LIMITATIONS**  
**FOR DOMESTIC WASTEWATER FACILITIES**

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WAC

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**WAC 173–221–010** Purpose and scope.

- (1) The purpose of this chapter is to implement RCW 43.21A.010, 90.48.010, and 90.52.040 by setting discharge standards which represent “all known, available, and reasonable methods” of prevention, control, and treatment for domestic wastewater facilities which discharge to waters of the state. This chapter supplements WAC 173–220–130. Guidelines or policies of the department not included in this chapter are not affected by this chapter, except that if such guidelines or policies are in conflict, the requirements of this chapter shall take precedence.
- (2) This chapter also supplements 40 CFR Part 133; Secondary Treatment Regulation. Wherever this chapter is more stringent than the federal regulation, the requirements of this chapter shall take precedence.

[Statutory Authority: RCW 90.48.035 and 90.48.260. 87–23–020 (Order 87–26), § 173–221–010, filed 11/12/87.]

**WAC 173–221–020** Policy. Waters of the state shall be of the highest possible quality. Regardless of the quality of the waters of the state, all wastes and other materials and substances proposed for discharge into said waters shall be provided with all known, available, and reasonable methods of treatment prior to discharge. Even though standards of quality established for the waters of the state would not be violated, wastes and other materials and substances shall not be allowed to enter such waters which will reduce the existing quality thereof, except

- (1) in those situations where it is clear that overriding considerations of the public interest will be served, and
- (2) they receive all known, available, and reasonable methods of treatment prior to discharge.

[Statutory Authority: RCW 90.48.035 and 90.48.260. 87–23–020 (Order 87–26), § 173–221–020, filed 11/12/87.]

**WAC 173–221–030** Definitions. As used in this chapter, unless the context indicates otherwise:

- (1) “Seven-day average” means the arithmetic mean of pollutant parameter values for samples collected in a period of seven consecutive days. The department may use pollutant parameter values for samples collected in a calendar week for determining compliance with permit conditions.
- (2) “Thirty-day average” means the arithmetic mean of pollutant parameter values for samples collected in a period of thirty consecutive days. The department may use pollutant parameter values for samples collected in a calendar month for determining compliance with permit conditions.
- (3) “BOD” means five-day biochemical oxygen demand.
- (4) “CBOD” means five-day carbonaceous biochemical oxygen demand.
- (5) “Combined sewer” means a sewer which has been designed to serve as a sanitary sewer and a storm sewer, and into which inflow is allowed by local ordinance.
- (6) “Department” means the Washington department of ecology.
- (7) “Director” means the director of the Washington department of ecology.
- (8) “Discharge standard” means a minimum performance requirement established in regulation by the department. Effluent limitations for a pollutant parameter shall not be less stringent than the applicable discharge standard.
- (9) “Domestic wastewater” means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration or surface waters as may be present.
- (10) “Domestic wastewater facility” means all structures, equipment, or processes required to collect, carry away, treat, reclaim, or dispose of domestic wastewater together with such industrial waste as may be present. In the case of subsurface sewage treatment and disposal, the term is restricted to mean those facilities treating and disposing of domestic wastewater only from:
  - (a) A septic tank system with subsurface sewage treatment and disposal and an ultimate design capacity exceeding fourteen thousand five hundred gallons per day at any common point; or
  - (b) A mechanical treatment system or lagoon followed by subsurface disposal with an ultimate design capacity exceeding three thousand five hundred gallons per day at any common point.

Where the proposed system utilizing subsurface disposal has received a state construction grant or a federal construction grant under the Federal Water Pollution Control Act as amended, such system is a “domestic wastewater facility” regardless of size.
- (11) “Effluent concentrations consistently achievable through proper operation and maintenance” means:
  - (a) For a given pollutant parameter, the 95th percentile value for the thirty-day average effluent quality achieved by a wastewater facility in a period of at least twenty-four consecutive months, excluding values attributable to equipment failures, operational errors, overloading, and other unusual conditions; and
  - (b) A seven-day average value equal to 1.5 times the value derived under (a) of this

subsection.

(12) “Effluent limitation” means any restriction, prohibition, or specification established by the department in a permit or administrative order on:

- (a) Quantities, rates, percent removals, and/or concentrations of physical, chemical, or biological characteristics of wastes which are discharged into waters of the state; and
- (b) Management practices relevant to the prevention or control of such waste discharges.

Effluent limitations shall be derived from discharge standards and other relevant factors identified in chapter 173–220 WAC.

(13) “Expansion” means the construction of additional treatment units to accommodate hydraulic flow and/or pollutant load for the purpose of increasing the existing design capacity of the wastewater facility.

(14) “Fecal coliform” means the group of coliform bacteria which originate in the intestinal tract of warm-blooded animals.

(15) “Industrial wastewater” means the water or liquid carried wastes from industrial or commercial processes as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade, or business, from the development of any natural resource, or from animal operations such as feedlots, poultry houses, or dairies. The term includes contaminated stormwater and also leachate from solid waste facilities.

(16) “Infiltration” means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects.

(17) “Inflow” means the addition of rainfall-caused surface water drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

(18) “Interfere with” means a discharge by an industrial user which, alone or in conjunction with discharges by other sources, inhibits or disrupts the domestic wastewater facility, its treatment processes or operations, or its sludge processes, use or disposal and which is a cause of a violation of any requirement of the domestic wastewater facility's permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal by the domestic wastewater facility in accordance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Federal Water Pollution Control Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA)), and including state regulations contained in any state sludge management plan prepared pursuant to Subtitle D or the SWDA, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Research and Sanctuaries Act.

(19) “Permittee” means the entity to which the department issues a permit.

(20) “pH” means the negative logarithm of the hydrogen ion concentration.

(21) “Sanitary sewer” means a sewer which is designed to convey domestic wastewater and infiltration.

(22) “State” means the state of Washington.

(23) “Trickling filter” means a fixed growth biological treatment system in which wastewater is sprayed over the top surface of a column of rock or synthetic media. This definition does not include fixed growth biological systems which have a supplemental biological treatment

system, other than a waste stabilization pond(s), for the principal wastewater stream.

- (24) “TSS” means total suspended solids.
- (25) “TSS concentrations achievable with waste stabilization ponds” means a TSS value, determined by the department, which is equal to the effluent concentrations achieved ninety percent of the time within the state or appropriate contiguous geographical area by waste stabilization ponds that are achieving the levels of effluent quality for BOD specified in WAC 173–221–050 (2)(a).
- (26) “Waste stabilization pond” means basins built by excavating the ground and by diking for the purpose of treating wastewater under conditions that favor natural biological treatment and accompanying bacterial reduction. This includes domestic wastewater facilities which are classified as stabilization ponds, or aerated lagoons per the department's *Criteria for Sewage Works Design*.
- (27) “Wastewater facility” means all structures and equipment required to collect, transport, treat, reclaim, or dispose of domestic, industrial, or combined domestic/industrial wastewaters.
- (28) “Waters of the state” means all lakes, rivers, ponds, streams, inland waters, ground waters, salt waters, and all other waters and watercourses within the jurisdiction of the state of Washington.
- (29) “Water quality standards” means the standards set forth in chapter 173–201 WAC.
- (30) “Wet weather” means the time during and immediately following rainfall events which cause large quantities of inflow.

[Statutory Authority: RCW 90.48.035 and 90.48.260. 87–23–020 (Order 87–26), § 173–221–030, filed 11/12/87.]

**WAC 173–221–040** Domestic wastewater facility discharge standards.

- (1) Except as allowed under WAC 173–221–050, domestic wastewater facilities which discharge to surface waters shall not exceed a thirty-day average of 30 milligrams per liter (mg/L) BOD, 30 mg/L TSS. Seven-day averages shall not exceed 45 mg/L BOD, 45 mg/L TSS. Additionally, the thirty-day average percent removals of BOD and TSS shall not be less than eight-five percent of influent concentrations.
- (2) Fecal coliform limits shall not exceed a monthly geometric mean of 200 organisms/100 milliliters (mL), and a weekly geometric mean of 400 organisms per 100 mL.
- (3) The effluent pH value shall be between 6.0 and 9.0 standard units unless the permittee demonstrates that:
  - (a) Inorganic chemicals are not added to the waste stream as part of the treatment process; and
  - (b) Contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0; and
  - (c) The discharge does not cause water quality violations outside of an approved dilution zone.

[Statutory Authority: RCW 90.48.035 and 90.48.260. 87–23–020 (Order 87–26), § 173–221–040, filed 11/12/87.]

**WAC 173–221–050** Alternative domestic wastewater facility discharge standards and effluent limitations.

- (1) Alternative discharge standards for trickling filters which were constructed and/or expanded prior to November 1984 are:
  - (a) Up to a thirty-day average of 45 mg/L BOD, 45 mg/L TSS. Seven-day averages shall not exceed 65 mg/L BOD, 65 mg/L TSS. In addition, the thirty-day average percent removals of BOD and TSS shall not be less than sixty-five percent of influent concentrations;
  - (b) Notwithstanding (a) of this subsection, not any less stringent than “effluent concentrations consistently achievable through proper operation and maintenance” of the wastewater facility based on an analysis of the past performance, the design, and the design capacity of the wastewater facility;
  - (c) Fecal coliform and pH discharge standards are as established in WAC 173–221–040.
- (2) Alternative discharge standards for waste stabilization ponds which are the principal treatment process and which either have less than a two million gallon per day design capacity or have received, prior to the effective date of this regulation, the department's approval under chapter 173–240 WAC, for a greater design capacity, are:
  - (a) Up to a thirty-day average of 45 mg/L BOD, 45 mg/L TSS. Seven-day averages shall not exceed 65 mg/L BOD, 65 mg/L TSS. Additionally, the thirty-day average percent BOD removal shall not be less than sixty-five percent of influent concentrations.
  - (b) The discharge standards for TSS in (a) of this subsection may be adjusted by the department to conform to the “TSS concentrations achievable with waste stabilization ponds,” provided that operation and maintenance data indicate that the TSS values specified in (a) of this subsection cannot be achieved.
  - (c) Notwithstanding (a) and (b) of this subsection, not any less stringent than “effluent concentrations consistently achievable through proper operation and maintenance” of the wastewater facility based upon an analysis of the past performance.
  - (d) Fecal coliform and pH discharge standards shall be as established in WAC 173–221–040.
- (3) For domestic wastewater facilities which receive flows from combined sewers, the department shall decide on a case-by-case basis whether any attainable percent removal can be defined during wet weather. If it can be defined, the department will set an alternative percent removal effluent limitation for the wet weather period. A permittee who requests such alternative limits shall submit supporting documentation to the department.
- (4)(a) For domestic wastewater facilities which receive less concentrated influent wastewater, permittees can request and submit supporting documentation for:
  - (i) A lower percent removal effluent limitation than the discharge standards set forth in WAC 173–221–040, or subsections (1) and (2) of this section; or
  - (ii) A mass loading limit based upon the lower percent removal.
- (b) To qualify for alternative effluent limitations because of less concentrated influent wastewater, the permittee must demonstrate:
  - (i) The wastewater facility is consistently achieving, and/or will consistently achieve, the effluent concentration limits and mass limits based upon the effluent concentrations in its permit; and

- (ii) That to meet the percentage removal requirements set forth in WAC 173–221–040 or subsections (1) and (2) of this section, the wastewater facility would have to achieve an effluent concentration at least 5 mg/L below the effluent concentration which is otherwise required; and
  - (iii) The less concentrated influent is not the result of excessive infiltration and/or inflow. The department will use federal regulations and guidance in defining excessive infiltration and inflow; and
  - (iv) The development and implementation of a program, subject to the department's approval, for ongoing wastewater facility maintenance, repair, and replacement, including infiltration and inflow control. A goal of the program shall be eventual achievement of the percent removal requirements specified in WAC 173–221–040 and subsection (1) or (2) of this section, whichever is applicable. The department shall incorporate the approved infiltration and inflow control program into the permit for the wastewater facility.
- (5) Subject to the department's approval, a request for alternative effluent limitations pursuant to subsections (1) through (4) of this section must meet all of the following conditions:
- (a) The effluent shall not cause water quality violations; and
  - (b) The permittee shall identify effluent concentrations consistently achievable through proper operation and maintenance; and
  - (c) The permittee shall demonstrate that industrial wastewater does not interfere with the domestic wastewater facility; and
  - (d) The wastewater facility must be within department approved hydraulic and organic design capacity; and
  - (e) The permittee must complete an analysis of whether seasonal alternative effluent limits are more appropriate than year-round; and
  - (f) The wastewater facility must be able to meet all other permit requirements and conditions.
- (6)(a) At the option of the department, in lieu of the parameter BOD and the levels of the BOD effluent quality specified in WAC 173–221–040, the parameter CBOD may be substituted as an effluent limitation with the following levels of the CBOD effluent quality provided: The thirty-day average shall not exceed 25 mg/L. The seven-day average shall not exceed 40 mg/L. Additionally, the thirty-day average percent removal shall not be less than eighty-five percent of the influent concentration.
- (b) At the option of the department, in lieu of the parameter BOD and the levels of the BOD effluent quality specified in subsections (1) and (2) of this section, the parameter CBOD may be substituted as an effluent limitation on a case-by-case basis where data are available. The levels of CBOD effluent quality shall not be less stringent than the following: The thirty-day average shall not exceed 40 mg/L. The seven-day average shall not exceed 60 mg/L. The thirty-day average percent removal shall not be less than sixty-five percent of the influent concentration.
- (c) Permittee applications for substitution of CBOD for BOD under (b) of this subsection shall include parallel CBOD and BOD data.

[Statutory Authority: RCW 90.48.035 and 90.48.260. 87–23–020 (Order 87–26), § 173–221–050, filed 11/12/87.]

**WAC 173–221–100** Severability. If any provision of this chapter or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this chapter which can be given effect without the invalid provision or application.  
[Statutory Authority: RCW 90.48.035 and 90.48.260. 87–23–020 (Order 87–26), § 173–221–100, filed 11/12/87.]